US Army Corps of Engineers ®

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U.S. Army photo

A Captured Enemy Ammunition Project contractor stands amid a sea of ammunition at an ammunition storage site in Iraq.

Huntsville Center secures captured enemy ammunition in war-torn Iraq

By B.J. WEINER
Huntsville Center

The destruction of thousands of tons of captured enemy ammunition (CEA) in Iraq demands extensive ordnance and explosive expertise coupled with meticulous planning and swift execution – qualities of the Ordnance and Explosive Directorate and its contractors.

With the announcement of the end of major combat operations in the spring, the United States faced the monumental task of rebuilding the infrastructure of Iraq. Since that time, major reconstruction efforts have been ongoing, according to Glenn Earhart, OE's chief of International Operations.

"The military had been managing captured enemy ammunition," said Earhart. "They were finding items such as small arms, grenades, rocket-propelled grenades, missiles, and projectiles. Estimated and actual use of military manpower to manage CEA has been significant and has resulted in use of manpower resources from other military missions."

Earhart explained that in June, Combined Joint Task Force-7 (CJTF) was assigned the task of managing and processing the CEA. The task force requested Corps of Engineers assistance to support the operation.

"I led a technical team from the Center here in Huntsville to Iraq," he said. "We conducted a site visit and prepared an assessment report, cost analysis and recommendations for the Huntsville Center and its contractors to conduct the operations in support of the CJTF. On July 28, the CJTF awarded us the $287 million contract for the CEA mission. We were able to get our contracts awarded, a forward team on the ground in Iraq and began demolition operations on Sept. 11."

The CEA task force has four main objectives: to develop a "cradle to grave" operation for the USACE to process CEA; to replace active military resources with USACE contractor personnel and government oversight; to transition CEA operations from military to the USACE by January; and to ultimately return the operation to the people of Iraq, Earhart said.

The Huntsville Center issued task orders for work in Iraq to Parsons, Inc., Pasadena, Calif., EOD Technology, Knoxville, Tenn.; USA Environmental, Inc., Tampa, Fla.; Zapata Engineering, Inc., Charlotte, N.C.; and Tetra Tech Foster Wheeler, Inc., Morris Plains, N.J. Earhart explained that the experience necessary

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Letter to the Editor

To the Editor,

I am leaving the U.S. Army Corps of Engineers this month after more than 30 years of service, all of which have been in the environmental field. During these 30 years I've seen our organization re-tool and hire natural resource specialists and biologists to deal with the requirements of the National Evironmental Policy Act (enacted in 1970) and other environmental statutes, going from tens of professionals to the hundreds we have today.

I've seen the growth of the importance of the environment in our programs, going from the compliance requirements of the Clean Water Act, the Fish and Wildlife Coordination Act, the Endangered Species Act, etc., to having Congress authorize ecosystem restoration as a major mission of our organization, one that has become a growth area in our water resources programs. Finally, under the direction of Lt. Gen. Robert B. Flowers, I've seen the Corps adopt its Environmental Operating Principles and Doctrine, together with the associated documents discussed in a separate article in this issue, setting the stage for more environmentally sustainable projects and activities in the future.

It's been a long, and sometimes difficult road, but one which I'd gladly re-travel. All of you are a part of a great organization, one that takes pride in its ability to change with the times and deliver the kind of public services the citizens of our country and the world deserve. Clearly over these past 30 years the public's values have changed. They are beginning to understand that a healthy and productive environment can be compatible with economic vitality and social well being. The Corps will and should be in the vanguard of this change as we move into the 21st Century.

Good luck to you all and Essayons!

Dr. Willliam Klesch
Senior Environmental Policy Advisor
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Breakthrough treatment technology approved

WASHINGTON — In a decision aimed at protecting the Everglades from future inflows of damaging phosphorous pollution, John Paul Woodley, Assistant Secretary of the Army for Civil Works, has approved a large-scale test of a new technology that holds great promise for removing phosphorus from waters entering the Everglades ecosystem.

The technology, known as periphyton-based stormwater treatment areas (PSTA), is modeled after an ecological process that has occurred in the Everglades for thousands of years. PSTA uses periphyton, a mat-like complex of microscopic plants and algae that occurs naturally in the Everglades.

Periphyton is important to phosphorous treatment technology because it effectively removes phosphorous from the water column.

The technology has been adapted for Everglades restoration by the U.S. Army Corps of Engineers and has already been subjected to a detailed small-scale test.

The small-scale demonstration showed that this PSTA technology can reduce phosphorous levels from 80 parts per billion to less than 10 ppb, the standard established by the Everglades Forever Act.

The results are 20 to 30 percent better than those achieved by other technologies.

"The Corps small-scale field application demonstrates the great benefit this technology may bring to the Everglades restoration program by reducing phosphorous to levels that will not harm the Everglades," said Woodley. "We now need to move to a large-scale field test. We're excited about the opportunity to do so within the footprint of STA-1E, a stormwater treatment area the Corps now has under construction in Palm Beach County."

The field test will include the design, construction and operation of a test cell that may cover more than 75 acres.

The field test will run approximately 18 months to establish the necessary plant and algal communities and to test water flow levels, conditions, and phosphorous outputs.

The field test will cost an estimated $5 million and will be funded entirely by the Federal government.

"Everglades restoration is a priority of the Corps of Engineers and the Jacksonville District has committed it's best and its brightest to the task of finding solutions to the problems that plague this national treasure," said Col. Bob Carpenter, commander of the Jacksonville District.

"We've pledged to look for naturally occurring remedies, and in this case, the answer was right there in the pristine parts of the remaining Everglades. Our challenge was to figure out how to establish the right conditions and cultivate the right communities in man-made stormwater treatment areas. We think we've found the answer."

For more information contact the Jacksonville District Public Affairs Office at (904) 232-2236.

Ecosystem restoration projects impact environment

By HANK HEUSINKVELD
Wilmington District

U.S. Army photo

Project Manager Tom Gibison, right, and Bill Dennis, center, discuss the daily construction plan with a contractor.

Scattered across the nation, many U.S. Army Corps of Engineers environmental projects have a big impact. Key sites are being restored every day, adding to the preservation and protection of flora and fauna in areas ranging from the once-choking Anacostia River in Washington, D.C., to the 10-mile long urban running and biking path known as the Bosque in Albuquerque, N.M.

In the Outer Banks towns of Wanchese and Manteo, N.C. two relatively small restoration projects make up a vital part of that big picture.

"We identified Wanchese because its marshes were eroding, and there was a need for both ecosystem restoration and protection for Wanchese harbor," explained Chuck Wilson, Wilmington District. "If the marshes erode, that opens the area to storm damage. So, it was a good opportunity."

The on-going plan is to develop a rock construction barrier as a dredged material containment feature that will hold at least seven acres of dredged material from the nearby Island H Project.

"The area will be graded to provide creek and marsh habitat," said Wilson. "Elevations will be constructed so that open water areas will function as primary nursery. Those open water areas will be buffered by low marsh species of grass."

And that's good news for local fisherman. Wilson says the marsh grasses provide habitat for early life stages of animals like shrimp and crabs. The remaining portion of the fragile, disappearing system that has managed to survive will have a simple, yet sturdy, barrier to protect it from Mother Nature and wake erosion from passing watercraft. Contractors are building a stone dike and sandbag wall that will hold dredged material from a nearby project.

"It's fairly simple work," says Project Manager Tom Gibison of Construction. "The dike is made by placing limestone bedding material on a geotextile fabric which helps in structural stability of the dike. The fabric is then wrapped over the limestone material. The limestone and fabric also protects against leakage from dredged material leaving the dike area. We then put armor stone on top of all that to protect against wave activity."

While Gibison normally looks at this project from a construction point of view, he's been able to envision the end result—a flush, thriving aquatic ecosystem in a few years.

"I couldn't really picture it when we started, but now that a lot of rocks are in place I can really see what this thing's going to look like," he said.

In nearby Manteo the marsh perimeter of Festival Park, which was constructed under Section 206 Ecosystem Restoration, is making a strong recovery. It, too, faced wind and boat wake. The solution was a rock barrier similar to the one at the Wanchese project.

"At Festival Park we looked at a total aquatic ecosystem approach that went from those lower water areas to the maritime forest," Wilson says. "Hurricanes and salt spray had damaged trees in the adjacent forest. The forest should normally help provide buffering for water flowing from the upland area out into the marsh."

Wilson says the dead trees were cut and cleared from the site, and new species have replaced some of the pines that had been lost. They included Atlantic White Cedar, an important wetlands species that historically has been used for boat building.

Wilson likes what he sees as he makes intermittent checks throughout the year. He says recovery is a slow process, but this Army Corps of Engineers project is working.

"Already you can see shrimp and juvenile fish in the open water area. This project also included an oyster restoration component, a one-acre oyster reef that was built just off shore of the site. We used some oyster shells within the project area between the open water area in the fill to make an additional stabilization of the toe of that material, and we have already been seeing some oysters in that area," said Wilson.

Projects like Wanchese and Festival Park are proof that sound science and time can counter the effects of humans and Mother Nature. And although these projects are small they're pieces of a much larger, complex puzzle necessary for the preservation of fragile ecosystems.

For more information contact the Wilmington District Public Affairs Office at (910) 251-4626.

Channel opened at sediment diversion project

By ERIC LINCOLN
New Orleans District

The West Bay Sediment Diversion Project opened this month, introducing fresh water and sediment from the Mississippi River into West Bay to help rebuild about 10,000 acres of vegetated wetlands over the next 20 years.

The project is located in Plaquemines Parish, five miles above Head of Passes, and is the largest of its kind in the world.

"It's a major sediment diversion without control gates, that will also be a model for future diversions," said Greg Miller, project manager, New Orleans District.

Dating back to the 50's, a number of storm events, natural subsidence and lack of sediment and freshwater introduction into the bay led to the disappearance of wetlands, creating an area of mostly open, shallow water.

"It will be a 20,000 cubic feet per second diversion for a few years," explained Miller. "If it works well, we'll dig it so it will flow to 50,000 cfs.

"The project's primary purpose is to rebuild marsh, though we're very interested in how well the project functions not only for the performance of this project but also to apply it to future projects..."

The Louisiana Coastal Area study team may use the data collected to support approval and funding for possible future diversions in Plaquemines Parish above Lake Maurepas at Myrtle Grove (about 50 miles upriver from West Bay) and near Fort Jackson (about 20 miles upriver from West Bay) along the Mississippi.

The dredge, California, began digging the West Bay channel in late September.

Most of the channel was solid riverbank, so rather than wait for the area to be cleared before dredging, the contractor laid pipeline to begin pumping material while at the same time working to clear away trees and shrubs.

U.S. Army photo

Great Lakes Dock and Dredge Company contractors work inside the leverhouse of the California, maneuvering the ship and cutterhead.

The project consists of three phases: removal of a foreshore dike, construction of the initial channel and removal of advance maintenance dredge material from the Pilottown anchorage.

Vessels use the anchorage to transfer crews and await further transit up the river. Analysis indicated the navigation channel and the anchorage area would both be subject to additional shoaling from the removal of water through the diversion. So the Corps agreed as part of the project to maintenance dredge to a 45-foot depth, allowing deep-draft ships to continue to use the anchorage as they have in the past.

"It's real critical to the shipping industry to be able to use that area," Miller explained.

All of the material from the riverbank where the channel is created and from the anchorage area is ultimately being pumped into West Bay for the creation of wetlands.

Because the area is mostly fresh water already, there shouldn't be any major reductions in salinity or negative impacts on existing fisheries once the diversion is opened, added Sean Mickal, Environmental Branch.

Corps team members also include Rick Broussard, Keith O'Cain, Nancy Powell and Sylvia Smith, engineering design team; Scott Clement, drawings; Ron Legendre, construction; and Gloria Just and Renee Russell, real estate. "The district's been working on this for over 10 years. There are a lot of people who had a hand in it," Miller said. "There was team effort all across the agency and with our local sponsor, the Louisiana Department of Natural Resources."

For more information contact the New Orleans District Public Affairs Office at (504) 862-1914.

U.S. Army photo

Tracked vehicles, called marsh buggies, assist in laying the pipeline.

St. Paul District struggles to save endangered mussels

By SHANNON BAUER
St. Paul District

Sifting through the sediment and muck of the Mississippi River, the biologists and natural resource managers picked out the endangered Higgins' eye pearly mussels one by one.

A tedious process, the divers spent two dreary September days pulling out 28 cages from the riverbed.

From there, representatives from the Corps of Engineers' St. Paul District; the Genoa National Fish Hatchery of Genoa, Wis.; the Minnesota Department of Natural Resources; and the U.S. Fish and Wildlife Service carefully sifted through the contents of each cage to monitor, clean and consolidate a batch of Higgins' eye that were hand propagated, or bred, earlier in the year and placed in the waters of a public beach in Old Frontenac, Minn.

Dan Kelner, St. Paul District fisheries biologist, counts the endangered Higgins' eye pearly mussels that a multi-agency, mussel team hand propagated last spring.

"It's fun," said Dennis Anderson, Corps project manager and fisheries biologist. "It's like an Easter egg hunt."

This work is part of a 10-year, $2.4 million Corps of Engineers project to revive the Higgins' eye. It involves placing juvenile mussels on host fish species and then raising them in cages in the river or at the hatcheries, as well as collecting adult Higgins' eye from areas heavily infested with zebra mussels, and relocating them to 10 new sites with minimal to no zebra mussels in the hope of at least five of these populations surviving.

The non-native zebra mussels cover the native mussels completely, so the Higgins' eye is suffocated to death. The zebra mussels, an invasive species, were transported to the Mississippi River by commercial and recreational watercraft.

The Corps of Engineers is concurrently conducting a study to control the zebra mussel population in the Upper Mississippi.

This is the second summer that this multi-agency group has been raising Higgins' eye.

Anderson explained that in April, the group extracts glochidia, or juvenile mussels, out of female Higgins' eye and places them on the gills of large-mouth bass at the Genoa National Fish Hatchery.

Then in May, the fish are placed in cages at selected nursery locations throughout the Upper Mississippi River system for a few weeks to allow the glochidia to mature and fall off the fish.

The little mussels are allowed to grow in the cages, safe from predators throughout the summer.

"The adolescent mussels aren't kept at the hatchery, because they survive much better in the river in about four to six feet of water," said Anderson.

After Higgins' eye are 2-years old and at least one-and-a-half inches long they have a much better chance of surviving a normal lifespan of 30-40 years .

"At two to three years old they are moved to their final relocation sites throughout the Upper Mississippi River basin, where we hope to establish new populations," said Anderson.

A close up shot of the Higgins' eye pearly mussel.

Photos by Shannon Bauer

Randy Urich (left, kneeling) and Kurt Brownell (right), both St. Paul District natural resource managers, sift through cages, looking for Higgins' eye pearly mussels.

This summer, the biologists were pleased. Whereas last summer only 1,100 mussels survived in the cages, this summer, more than 7,000 survived.

"This is just great," said Dan Kelner, Corps' fisheries biologist. "We found more than 800 in two cages alone."

These efforts, in addition to saving this species from extinction, will greatly assist in the recovery of the species and may eventually lead to their removal from the endangered species list, said Anderson.

The lessons learned on raising Higgins' eye will greatly assist other mussel conservation efforts across the nation, including the winged mapleleaf mussel conservation plan the St. Paul District will be working on during the next couple of years, he added.

For more information contact The St. Paul District Public Affairs Office at (651) 290-5108.

Secretary of State recognizes Corps employees

By MONIQUE FARMER
Omaha District

Secretary of State Colin Powell sent a letter of thanks to Corps Rapid Response Team member Tim Gouger Oct. 29 for his role in decontaminating a Department Of State pouch and parcel distribution facility in Sterling, Va.

The letter read: "I wish to thank all the members of the decontamination and rehabilitation team for your outstanding contributions to the decontamination and rehabilitation of the Department of State Pouch. Your hard work and technical expertise were crucial to the success of this effort. Congratulations on a job well done."

It was presented to Gouger and other members of the decontamination and rehabilitation team based in the Corps' Omaha District following the completion of the project, which spanned nearly a year and a half.

"It's important to recognize the significance in finding the right people and the right culture to make a match for this type of work. And I think we were able to do that," Gouger said.

Gouger helped assemble decontamination teams and manage contractors responsible for performing decontamination actions at the Department of State from July 2002 to November 2003.

He was tasked with the assignment after authorities determined the 70,000 square-foot facility was contaminated with anthrax spores.

"First, a postal employee who worked in the building tested positive for inhalation anthrax," Gouger says. "Then they found positive detections of *Bacillus anthracis* on several pieces of equipment in the facility." *Bacillus anthracis* is a spore-forming bacterium that causes the acute infectious disease, anthrax.

The confirmed case of anthrax and test findings sparked evacuation of the building's tenants and the immediate planning for decontamination of the building, which is where rapid response came in.

"The Corps' Rapid Response is a center of expertise for time-critical removal actions," Gouger says. "The postal service called on us to do the work because our background and rapid response led the waste removal and facility cleaning phases—work that came with unique challenges.

"The fact that federal agencies have had limited exposure to weaponized biological agents is perhaps the most unique challenge," said Craig Roberts, program manager. Roberts oversaw the decontamination work conducted by the team.

U.S. Army photo

Conducting a spore reduction sequence - chemically deactivating spores by applying a bleach solution.

"There were no standards and no cookbook for this," Gouger says. "With most other types of chemicals, they're highly regulated. You know exactly how much you can get on your skin or absorb, ingest or inhale. But when you get into biological agents, there's no regulation. There's just a big black hole."

In an attempt to fill that hole, a group of technical experts from various federal regulatory agencies were put into place to review and comment on the work. The Environmental Clearance Committee, an independent review group, was also included in the review process.

The U.S. Environmental Protection Agency, Centers for Disease Control, National Institute of Occupational Safety, and Occupational Safety and Health Administration received a chance to chime in with comments and recommendations. State and local health departments and some state laboratories were also involved.

"All of these agencies have their own lists of concerns and you have to be able to plan the work so that all of those issues and concerns are addressed," Gouger says. "In order to meet everyone's needs, we held a meeting every two weeks, brought in photos showing the work that was going on inside the building and modified our plans as necessary based on comments received."

Gouger says the decontamination team worked closely with Occupational Safety & Health Administration (OSHA) to determine appropriate levels of protection while working inside the building. The team was required to be suited in a double-layer of full-protective body clothing: one regular white Tyvek suit beneath a poly-coated yellow Tyvek suit, rubber Beta boots, two pairs of inner and one pair of outer nitrile gloves, and a mask with an air-purifying respirator.

"To try and speed up the working process and still comply with the respiratory standards, OSHA allowed us to put air sampling stations in proximity with workers conducting intrusive activities," Gouger says. "It served a double-benefit because it allowed workers to stop being limited to a couple of hours of air through the pumps, and it gave them an understanding of spore loading within the facility."

Gouger says the team collected more than 1,000 laboratory samples to determine whether the intrusive work activities were generating spores and out of those samples, none returned positive.

"It gives you confidence that our work practices were such that we were controlling the release of spores during the decontamination actions," he said.

The team completed the project in November. Gouger also received recognition on behalf of the team from the commander of Omaha District, Col. Kurt F. Ubbelohde.

"He has strong technical expertise and has displayed exceptional personal commitment to excellence in his effort to share knowledge and assist in further developing the nation's defenses against weapons of mass destruction," Ubbelohde says.

"It was quite complex work because it's something we've never had to deal with before and the team managed to caulk and seal every air leak imaginable in that building," said Roberts. "I think this is a real success story."

For more information contact the Omaha District Public Affairs Office at (402) 221-3913.

Virtual team crosses traditional boundaries

By LUKE MCCORMICK
HTRW Center of Expertise

In 1942, University of Chicago scientists working on the first atomic reactor realized they were being exposed to radiation levels higher than ever before.

The scientists asked the Department of Health to provide someone who knew about the physics of the work to monitor their safety. The Department of Health physicist was assigned to the project and is now designated as the Health Physicist.

The HP was skilled at radiation assessment, measurement and converting radiation exposure to dose.

The scientists went on to become part of the USACE Manhattan Project to construct the first atomic bombs.

In 1997, there were only two HPs and three HP interns in USACE.

The number of projects involving work with radioactive materials was increasing exponentially. To meet the needs of all of USACE, the HPs worked with the Headquarters Safety and Occupational Health Office and the headquarters Environmental Division, Directorate of Military Programs to organize the USACE Radiation Safety Support Team (RSST).

In December 1997, the USACE chief of staff formally established the RSST, a virtual team of health physicists with no geographic boundaries, dedicated to providing all commands with health physics support for any project.

The RSST's mission is to provide technical, regulatory, safety, and on-site field support to USACE commands during all phases of radioactive materials projects, and to assist local safety and occupational health managers in supporting their command radiation safety programs.

The HPs team with any district needing their services to provide timely technical assistance on questions involving radioactive wastes, sources, and materials, radiation generating devices, and non-ionizing radiation sources such as lasers, radio, microwaves, and overhead power lines.

In the years following its creation, the RSST has grown to 17 HPs.

With the increased numbers has come increased in-depth knowledge. Team members' subspecialties include: regulations, radioactive material and waste, reactor decontamination and decommissioning, radioactive commodities, radiation safety training, lasers, radio frequency, and radon. They have provided technical services to every district in USACE.

The RSST has provided in-house final status surveys for site closeout at Army facilities including storage bunkers, hospitals, weapons maintenance shops, and FUDS sites, as well as for Air Force firing range sites resulting in a substantial savings on estimated contract costs.

The RSST regularly audits each USACE Nuclear Regulatory Commission licensee, and provides advice on maintaining compliance with the NRC and DA licenses and permits.

They have provided guidance on dealing with depleted uranium contamination for the USACE FEST team working in Iraq.

Typical project procedures to involve the RSST include:

- The Project Manager contacts the RSST coordinator at the HTRW CX and explains the project needs.
- The coordinator confers with the RSST, reviews the details of the project, determines team availability, support assignments, and actions, and any need for external assistance.
- RSST members' superiors are consulted to ensure that upcoming workload will not hinder performance of the HPs duties to the specific project delivery team.
- The RSST members assigned actions then proceed as part of the PDT.

Typical examples of projects where the RSST has been a key player include:

- Assistance to the Alaska District in the cleanup of radioactively contaminated soils adjacent to the Army's Fort Greely deactivated nuclear reactor, radiation safety training and onsite technical assistance for Los Angeles District on the Navajo Nation Abandoned Uranium Mines project in New Mexico in support of the Environmental Protection Agency and the tribe.
- Expert technical consultation to New England District on the Combustion Engineering Formerly Utilized Sites Remedial Action Program site in Connecticut.
- Onsite assistance to Ft. Worth District in performing an indoor radon study at Fort Hood, Texas.
- Surveying target vehicles for unrestricted release on the Superior Valley Gunnery Range, Calif., for the Air Force.
- Review of DOE management practices for the Office of Management and Budget.

Six years of RSST teaming experience have proven that virtual PDTs work.

For more information about the RSST, visit the Web site at www.environmental.usace.army.mil/info/technical/hp/hpwelcome/hprad/hprad.html.

For more information contact the Omaha District Public Affairs Office at (402) 221-3913.

U.S. Army photo

The USACE Radiation Safety Support Team surveys a target vehicle for use at a gunnery range.

Photo by Nancy Welch

Fishing at Tunica Cutoff Lake is a favorite sport for David Welch, a civil engineer -- especially with two of his best fishing buddies, Brute (left) and Buffy.

Corps restores lake elevation levels

By BRENDA L. BEASLEY
Memphis District

As sunlight glitters across the rippling water, black bream, largemouth bass, black and white crappie, channel catfish and young willow trees are getting a new lease on life.

A win-win solution to protect and enhance the environment has become a reality with completion of the Tunica Cutoff Lake Weir Ecosystem Restoration Project.

An environment maintained in a healthy, diverse and sustainable condition is necessary to support life. The Tunica Cutoff Lake has been a valuable and important environmental area and recreational lake in Tunica County for more than 50 years, said Lyn C. Arnold, executive director, Tunica County Chamber of Commerce.

People from the tri-state area (Arkansas, Mississippi, and Tennessee) all use and enjoy the lake for a variety of recreational activities. The lake also serves as an important ecology site in Tunica.

"We finally got this project turned around and we thank the Corps for making this project happen," said Ken Murphree, Tunica County Administrator.

The weir was dedicated and named the "James F. Tucker Weir," because of Tucker's efforts in helping make it a reality. "This is a day that we who love this lake have waited on for many years," said Tucker, Tunica County Board of Supervisors member. "Here we are! It's a reality! This will give the people of Tunica County something I promised them years ago."

The total project cost, including studies was about $1.6 million.

It was a joint venture between the Corps and Tunica County according to Quality Assurance Representative Michael E. Damron of the Memphis District's Wynne Area Office.

As the QAR, he was onsite every day to monitor the contract and ensure that the contractor performed his duties according to the project's plans and specifications.

"We began clearing the site the last week of February and the first part of March and worked for about two weeks. Then the Mississippi River rose and ran us off," said Damron, "we came back July 2, 2002, and completed the project Oct. 27, 2002."

The weir is about 170 feet long across the chute, 15 feet at the crown and 340 feet wide at the base.

The plan to maintain minimum lake levels consisted of constructing a double-notched low flow weir (a rock structure that regulates the flow of water) across the chute.

The weir design includes bank and toe protection, a stone ramp, and a low-water key trench on the riverside. About 35,000 tons of stone were used during construction. The stone on the crown of the structure was grouted into place to increase stability and to further reduce seepage.

The smaller notch will provide easier access from the state of Arkansas.

The area is located in Tunica County, Miss., and Lee County, Ark., on the left descending bank at river mile 677.5 of the Mississippi River. The former centerline of the Mississippi River extends through the lake and is the boundary between the states of Arkansas and Mississippi. However, the weir was constructed in the chute that connects the lake to the Mississippi River, which is located entirely in Lee County.

Overland access to the lake in the state of Mississippi exists via four private boat ramps, which provide public access for a nominal fee. Because of the limited over-land access, the stone was transported by barge and loaded onto trucks and hauled to the project site.

It was put in place by using track hoes.

"The worst part of the job was driving in and out of eight miles of dirt roads that were muddy most of the time because of the amount of rain we had," said Damron, "But working with the people of Tunica County made up for it, because they gave you a feeling of accomplishment — a feeling that you were doing something that was really important to them and they really appreciated what we were doing."

When they came to the end of the job and got ready to do the grouting, they were hindered by fluctuating river conditions. They had specific elevations to grout to and it was difficult when the river was rising and falling, because they didn't want to grout under water any more than necessary.

"When you're grouting under water," said Damron, "you can't see what your doing. And with the flowing current it washed the grout out."

During high river stages, water enters the lake from the upper and lower ends. At intermediate stages, the chute serves as the principle path for inflow and outflow from the lake. Within the last 15 to 20 years, erosion along the chute bottom and lower lake levels have had an adverse effect on the fish, waterfowl, and overall aquatic habitat of the lake, according to Abernathy.

Photo by Richard Turner

Contractor places 1,500-pound stones that were transferred by truck from a nearby barge.

Project construction will result in restoration of a stable water level within the lake and have little if any adverse impact upon the many wildlife species that use the lake's aquatic and riparian habitats.

Since the notched weir design will allow significant drawdown of the lake during low river stages, vegetation encroachment will continue to occur at lower elevations within the lake and provide enhanced cover and feeding areas.

This environmental sustainability can only be achieved by the combined efforts of federal agencies, tribal, state and local governments, and the private sector each doing their part and backed by the citizens of the world, according to the Corps' Chief of Engineers Lt. Gen. Robert B. Flowers.

In March 2002, he announced the Corps' commitment to the environment by formalizing a set of "Environmental Operating Principles" applicable to all its decision making and programs.

These principles foster unity of purpose on environmental issues, reflect a new tone and direction for dialogue on environmental matters, and ensure that employees consider conservation, environmental preservation and restoration in all Corps activities.

By implementing these principles during the Tunica Cutoff Lake Weir Ecosystem Project, the Corps sought to develop scientific, economic and sociological measures to judge the effects of its project on the environment and a better way of achieving an environmentally sustainable solution.

"A weir is a control structure — not a dam — not a dike — it is designed to control the flow of water. Any water above a 163 NGVD (National Geodetic Vertical Datum) can flow freely then it slows down. It gradually slows to 159. When it reaches 159, it can't flow out. Tunica won't get below a 159 elevation," said Damron.

An important ecosystem, which was highlighted at this year's Mid-South Fair in Memphis, has now been restored.

The district exhibited photographs and an interactive model illustrating how the weir worked to restore lake levels.

More than 435,000 people visited the fair in the ten-day period. Some of them learned how the black bream, largemouth bass, bluegill, black and white crappie, and channel catfish can once again swim around the young willow trees in Tunica Lake — that is, until they get hooked.

For more information contact the Memphis District Public Affairs Office at (901) 544-3005.

Photo by Brenda Beasley

Tunica County Chamber of Commerce Executive Director Lyn C. Arnold (left) presents a plaque to James F. Tucker (right), for whom the weir was named.

New partnerships, common interests draw participants from across country

By CANDICE WALTERS
HQ USACE

PORTLAND, Ore. — People who attended the Oct. 27-29 National Brownfields Conference came from diverse backgrounds with differing ideas of how to improve their communities, but they had at least one common trait – a vision of what they believe their communities should be.

Sometimes, however, that vision is deep within one's mind, not fully formed. The U.S. Army Corps of Engineers helped conference participants put their vision down on paper, thanks to the creative talents of Portland artist Brian Borrello.

Convention goers who stopped by the Corps' exhibit sat down with Borrello who turned the visions in their minds into colorful drawings. By the end of the conference, he had created a mural that incorporated all the individual drawings to display what conference participants thought a sustainable community should be.

The notion of sustainability and how federal, state and community groups could work together was a topic of great interest at the conference that drew more than 3,500 people from across the country.

One of the highlights was the signing of a Memorandum of Understanding between the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers supporting community-based brownfields efforts.

Chief of Engineers Lt. Gen. Robert B. Flowers signed the agreement with Marianne L. Horinko, the EPA acting administrator, at the plenary session.

The agreement outlines the two agencies' commitment to work together to help communities identify, clean up, restore and facilitate sustainable reuse of brownfields.

"We've learned that to find the best solutions, we must develop dynamic partnerships with true dialogue," Flowers said. "Making new connections, creating new partnerships with governmental and non-governmental agencies, the private sector and academia will offer us rich new opportunities."

One such opportunity is the new Portfields Initiative, an effort led by the National Oceanic and Atmospheric Administration and administered by the Portfields Interagency Working Group (of which the Corps is a member).

The initiative focuses on redeveloping brownfields in and around ports, harbors and marine transportation hubs (portfields) with an emphasis on developing environmentally sound port facilities.

During the conference, three pilot programs to kick off the Portfields Initiative were announced: Bellingham, Wash.; Tampa, Fla.; and New Bedford, Mass.

The Corps will be an active participant in the Portfields Initiative at each of those sites, Flowers said. At New Bedford, "the Corps is already managing the cleanup of contamination for EPA. Now, with the power of the multi-agency partnership, sites such as New Bedford will breathe new life," he said.

And new life is what the Brownfields Conference was all about – finding creative ways to put decaying urban areas back into productive use. To that end, Patricia Rivers, chief, Corps Environmental Community of Practice, participated in a Formerly Used Defense Sites panel discussion focusing on how these sites can be viewed as brownfield opportunities. Rivers and William Dawson, chief, Corps Planning Community of Practice, also answered questions during the Town Meeting session "Turning Brown to Green: The Changing Color of the American Landscape."

The highlight of the conference, though, for many participants was the opportunity to see their vision come to life.

"I thought it was a great idea," said John Yelenich of Manhattan, Kan. "You get creative inspiration when you sit here and reflect on your notions."

Jane Mergler, an environmental protection

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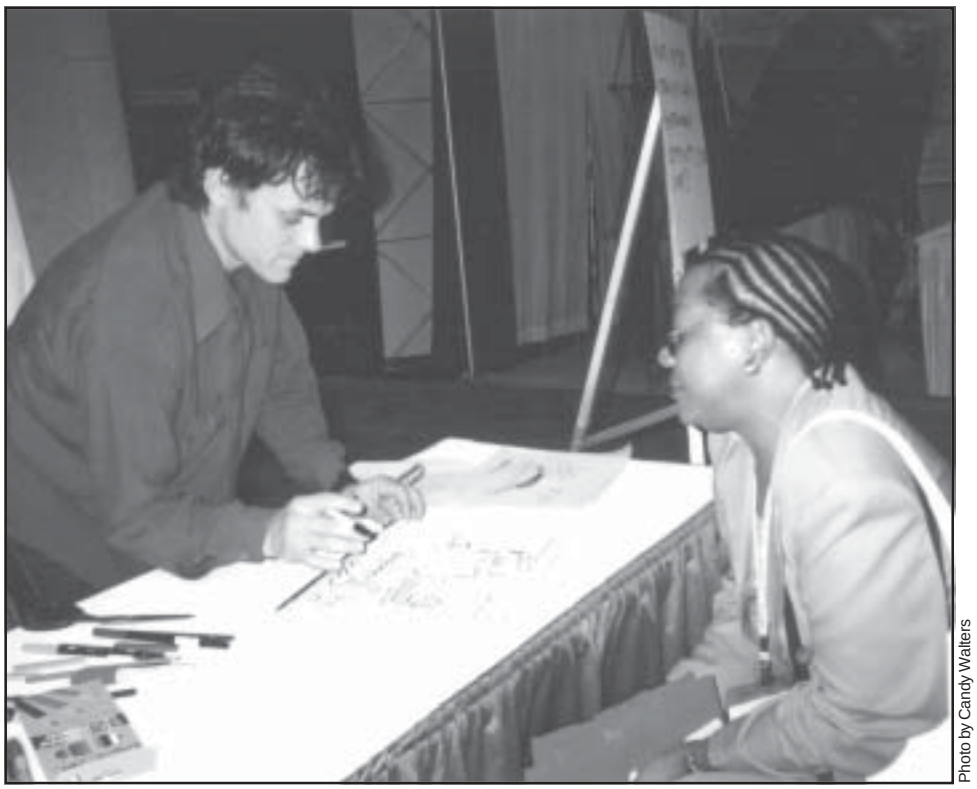

Photo by Candy Walters

Nicole Comich-Bates of EPA Region 4 in Atlanta shares her vision of what a sustainable community should be with Brian Borrello, a local Portland artist, at the U.S. Army Corps of Engineers exhibit at the National Brownfields Conference.

Communities receive environmental grants

Law addresses abandoned, idled, under-used properties nightmare

By MIKE THARP
Los Angeles District

It could be an abandoned gas station in Glendale, Ariz. Or a pink stucco motel in the Nevada desert where Howard Hughes staged one of his marriages. Or an old tank farm in aptly named City of Industry, Calif. Or a casket company in Irwindale, Calif.

Any of these sites, and hundreds of others, could qualify as "brownfields"—abandoned, idled or under-used properties which are tough to redevelop because of real or suspected contamination. Under a 2002 law, states, tribes and communities are eligible for EPA grants ranging up to $700,000 per applicant.

As a preview to the national conference in Portland, the EPA sponsored a brownfields workshop at the L.A. District headquarters Oct. 16. The meeting was one of six arranged by the environmental agency's Region 9 to acquaint stakeholders with the program. Some 50 representatives of cities, counties, nonprofits, private firms and others flocked to a Corps conference room to hear the EPA's Carolyn Douglas and Steven Linder explain the program and answer their questions about eligibility and other issues.

"We're interested in working with the Corps in future programs," Linder said after the event. "Suzanne Perkins (of the Corps) is working in our San Francisco office now, and we'd love to expand this."

"I was glad to see that the brownfields program has softened to allow more sites to be developed under the grant program," said Priscilla Perry, a civil engineer and study manager in the district's Coastal Studies Group. "This money could provide a source of funding for small cities which could benefit them economically through revitalization, and the Corps could provide valuable assistance to them."

This is not your father's skimpy redevelopment scheme. Between 1995 and 2003, Region 9 awarded 87 brownfields grants valued at $32.5 million. EPA estimated the total value of cleanup, construction and redevelopment leveraged by the program at $756 million. "The brownfield assessment program lets you use the money to assess if there are contaminants on the property," said Douglas. But the program is far from another government giveaway, and she estimated that fewer than 20 percent of last year's applicants got grants.

Comments from participants were generally favorable:

Will Reed, Santa Barbara County: "This was my first brownfields workshop and it provided a pretty good foundation for me as my agency begins to look toward possible brownfields sites to build homes on. Although the presenters answered all of my questions and provided me with good direction, there were a few questions from others that weren't answered. I will be attending more workshops in the future, but I don't think we, the county, will be in a position to complete an application by the deadline date. Maybe next year!"

> *"This really opened up my eyes—I think our city can benefit from it."*
>
> **Theresa Olivares**
> **Irwindale Resident**

Jim Hill, City of Signal Hill: "The workshop was a nice, informal and very informative forum that I feel will really benefit my preparation of the city's brownfields grant application. Signal Hill was approved for a brownfields assessment pilot grant in 2000, and it really helped in the development process of a few major projects in the city. We hope we can build on that previous success with another grant award for FY 2004."

Alex Fu, L.A. City Housing Dept.: "It was very informative. However, I wish that there would be more time given for feedback, and it could also include more examples to explain unique conditions so the audience can understand better in the future."

Theresa Olivares, City of Irwindale: "There are a couple of sites we could really use this on. Phase I is being done on a former casket company—we think there's some contamination there. This really opened up my eyes—I think our city can benefit from it."

Bill Shannon, City of Pico Rivera Housing Services: "The workshop was very informative. It was evident that the EPA staff was interested in getting concise, competitive grant applications that would score well in the national competition. They took great care to answer all the questions from the audience and stuck around to answer individual questions. It was time well spent. Our city will be applying."

Mauricio Escobar, URS Corp.: "As a consultant I often get questions like, does our site qualify? Who do we get the State letter from? How do you qualify for a waiver? From my point of view, there was a lot of good information presented. I also appreciated the different points of view with people from city agencies, nonprofit organizations, consultants and regulators."

Bruce Saito, L.A. Conservation Corps: "I thought the meeting was informative, but there were still many questions that could not be answered. I was also surprised at the lack of knowledge of brownfields programs by some of the participants, but on the other hand, there were a number of individuals who were well versed in policy and process. I personally learned a lot and I will put the information to good use."

Raymond Afghani, Santasoil: "This program needs to have more informative detail in order to be more beneficial, and I am not sure yet how this is going to include the private parties who have petroleum-contaminated sites that are on lower-priority lists with water quality control boards. Other than that, I thought the meeting was very informative and was glad to see such programs are available and going to take shape in Region 9."

Three years ago, the Brownsfield Program was one of only two federal winners in the highly respected Innovations in America Government competition. Harvard's John F. Kennedy School of Government, the Ford Foundation and the Council for Excellence in Government selected it.

Judging from the recent turnout and receptivity in the Corps conference room, the program is still winning friends and influencing people—or as an EPA official put it two years ago: "Cleaning up blight and improving lives, one property at a time."

For more information contact the Los Angeles District Public Affairs Office at (213) 452-3921.

Corps of Engineers employees have three new tools to implement Environmental Operating Principles

By DR. WILLIAM L. KLESCH
HQUSACE

U.S. Army Corps of Engineers employees working to implement the Environmental Operating Principles now have three new tools – a headquarters program management plan as an example for implementing the principles and doctrine, a new Engineer Regulation 500-2-1 and a Commanders Policy Memorandum #12.

The three new documents, developed by a multi-disciplinary team at the headquarters, when taken together with the principles and doctrine, provide a lasting legacy to the 50th Chief of Engineers, Lt. Gen. Robert B. Flowers, and his commitment to the environment and sustainable development.

The new ER 500-2-1, "Policy for Implementation and Integrated Application of the U.S. Army Corps of Engineers Environmental Operating Principles and Doctrine," was developed to stress the commitment of headquarters' leadership to the principles and doctrine.

To continue the momentum established with the release of the principles and doctrine and to communicate their continuing value to the Corps, a Commanders Policy Memorandum #12 was developed, which encourages the field to develop similar program management plans detailing how they will integrate the principles and doctrine into their programs and activities.

The Chief of Engineers signed both documents on Dec. 30.

The program management plan to implement the principles and doctrine contains eight major actions to ease their integration into the Headquarters' corporate business processes.

The eight actions are:

Examine all policies and guidance to assure they promote the integration of the principles and doctrine into all corporate business processes consistent with the 2012 Objective Organization. Each Headquarters and USACE field office with proponent responsibility for developing policy and/or guidance will undertake this effort.

Develop and implement an environmental management system (EMS) encompassing all Corps corporate business processes as a framework for tracking the progress in achieving environmentally sustainable development as prescribed in the principles and doctrine. This action is consistent with Corps, Army and Department of Defense policy as well as Executive Order 13148, "Greening the Government Through Leadership in Environmental Management."

Actively engage partners and stakeholders in implementing the integration of the principles and doctrine into all our corporate business processes. This will promote and build upon opportunities to partner with multiple agencies at all levels in addition to nongovernmental organizations and the private sector. The Corps also should continue to host "listening sessions" with stakeholders to encourage more collaborative activities.

"Based on the lessons learned from these and other efforts, the challenge for the Corps is to develop a set of metrics unique to its activities that give us a sense of the progress we're making in achieving sustainable solutions in all our programs and activities."

Actively engage the Chief's Environmental Advisory Board in furthering the integration of the principles and doctrine into all Corps corporate business processes.

Develop and implement a set of environmental sustainability metrics based upon the Corps research and development products, the products of others engaged in environmentally sustainable development and the Corps field experience with implementing the principles and doctrine. Numerous efforts are under way and as a learning organization, the Corps needs to learn from them, such as the Army's Sustainable Installation Initiative, Sustainable Seattle, the various sustainability requirements in Sweden, Sustainable Pittsburgh, etc. Based on the lessons learned from these and other efforts, the challenge for the Corps is to develop a set of metrics unique to its activities that give us a sense of the progress we're making in achieving sustainable solutions in all our programs and activities.

Establish a training/education program on environmentally sustainable development and the principles and doctrine to show how they relate to all Corps corporate business processes. Numerous training aids, including workshops and mentoring, are available. Employees also are encouraged to develop and participate in a Sustainability Book Club, which is an excellent "lesson learned" from FORSCOM's Sustainable Installation Initiative.

Encourage each major subordinate command (MSC) and district to prepare and update program management plans to implement the principles and doctrine. This will cause MSCs and Districts to think more programmatically as they implement the principles and doctrine into all their business processes. This also builds upon the initiative created with the Lt. Gen. Frederick J. Clarke Award for Leadership in Sustainability and recommends that this award be made an annual event.

Promote business processes that contribute to the growing body of evidence on methods of achieving environmentally sustainable development and recognize, publicize and reward success stories and lessons learned related to the implementation of the principles and doctrine. We need to recognize the innovative efforts undertaken by our MSCs, districts and labs to achieve the integration of the principles and doctrine and celebrate and publicize them, both internally and externally.

The program management plan also outlines 59 environmental initiatives within the Civil Works, Military Programs and Research and Development Directorates that were begun before or during the development of the principles and doctrine that support their implementation. A final component is a communications plan that identifies a number of actions that are already in place or under way, such as a Web Site, a brochure, poster, numerous articles and the development of a video explaining the Corps' environmental program.

Federal Electronics Challenge – are you up to it?

By CLARE PERRY
Northwestern Division

Imagine the challenge in disposing of 10,000 used and obsolete federal computers each week.

Toss in the continual discard and excess of printers, mobile phones and fax machines from more than 1.8 million federal employees and the phenomenon of managing electronics waste becomes formidable, indeed.

What happens to the nearly $50 billion worth of electronics purchased annually once their life cycle is over? How are the 6 pounds plus of hazardous waste in a computer monitor disposed of?

Unfortunately, nationwide the answer is usually the landfill, the junkyard, or Asian soil. In fact, much of the electronics waste that goes to "recyclers" in the United States eventually ends up on ships that dump it in one or more Asian countries.

While some materials can be reclaimed as scrap, the majority cannot and are openly abandoned or burned, releasing highly toxic dioxins into their air and water.

Not only has this made the air foul and water undrinkable in many areas, but Asian workers who labor long hours to extract scrap show very high illness rates.

The problem is compounded by the lack of regulatory guidelines for recycling electronics here at home. The current GSA Federal Property Management Regulation frustrates many agencies and contains only minimal provisions for recycling electronics equipment.

Federal agencies often end up stockpiling obsolete electronics, hoping to donate them to schools and charitable organizations. Increasingly, however, the age of the electronics makes them unattractive, even as a give-away.

To address the avalanche of electronics waste generated in the federal system, the Environmental Protection Agency and the Office of the Federal Environmental Executive, are promoting disposal of electronic equipment in an environmentally responsible manner.

One such proposal establishes a government-wide acquisition contract for electronics recycling. Others include formation of support systems, such as the Federal Network of Sustainability, and promoting initiatives like the Federal Electronics Challenge and the incorporation of the FEC into an agency's Environmental Management Systems approach.

The Federal Electronics Challenge is designed to encourage responsible management of the growing federal electronics waste stream through teaming of federal agencies that will work together under a memorandum of agreement.

The pilot phase of the challenge received a White House go-ahead at a recent meeting of the Federal Network of Sustainability in Portland, Ore., hosted by the Northwestern Division, U.S. Army Corps of Engineers.

Speaking to western area representatives from numerous federal agencies, John Howard, the Federal Environmental Executive, urged all federal agencies to join the pilot study and accept the challenge to reduce environmental impacts from their electronic assets.

The Federal Electronics Challenge offers agencies an unusual opportunity to showcase sustainable environmental stewardship.

Participants are asked to purchase greener electronics products, manage electronic assets in an environmentally sound manner, receive advice and assistance to modify current practices, and document their results for national recognition.

Agencies, branches, and departments may compete at several levels – bronze, silver, gold, or partner – determined by the number of activities undertaken and their success in integrating the three phases of the electronics lifecycle: acquisition and procurement, operations and maintenance, and end of life management.

Partner and Gold level status participants will receive White House recognition at the conclusion of the pilot program.

For more information contact the Northwestern Division Public Affairs Office at (503) 808-3733.

Brownfields

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specialist with the Corps Environmental Community of Practice, said the Corps decided to sponsor the artist in hopes that the drawings would "help us understand what's important to people and to understand what they like about their communities."

Nicole Comich-Bates, Region 4 of the U.S. Environmental Protection Agency, said her region does a lot of charrettes and people like them because they can see their vision on paper. She said she enjoyed her 15-minute session with Borrello although "it was a little scary because what he drew wasn't exactly what I said, but it was what I was thinking."

"It's a good conduit for people who have really strong feelings, but never have been really able to articulate them," Borrello said. "We're helping them fill out their vision, scratch their itch if you will. It gets it out there for all to see."

Some people enjoyed the experience so much they returned to the booth to show their artwork to friends, and in at least one case, to ask Borrello to make additional changes to the original drawings.

Malia Martin, of Portland, said that the experience made her "feel connected to the process at the conference. We had a good discussion about identifying the problems and what I wanted to get across. He helped visualize it for me. It was wonderful!"

Some people said they thought the idea of an artist drawing participants' ideas of sustainable communities was a departure for the Army Corps of Engineers.

"For Brownfields redevelopment to occur, people need to start out with an impression of where they want to go, and then let the details work themselves out later," said James Waddell, chief of the Corps Business Management Division, South Atlantic Division.

As a partner with other federal agencies, communities and private organizations in bringing brownfields back to life, Corps employees said they believe they can be most effective if everyone starts out with the same shared vision.

"In designing a sustainable community, the most important piece is the thought process, and that's what we're after," Waddell said. "As we move ahead in these projects, people have to be more open-minded and visual so we've been helping them draw pictures of what they want."

Other Corps employees giving presentations during the conference were Kira Lynch of Seattle District who spoke on "Feeling the Need for Speed: Using Triad to Tackle Brownfields," and Roselle Henn of New York District gave a presentation on "Taking Back Our Urban Rivers."

Volatile organic chemicals may impact indoor air quality

By MARK FISHER, ANITA FISHER, DAVE BECKER
HTRW Center of Expertise

There is increasing concern in the regulatory community that air inside buildings situated on or above soils or groundwater contaminated with volatile organic chemicals may become unacceptably impacted by these compounds due to the inward migration of contaminated vapors.

Indoor air sampling is an appropriate field investigation technique, but only if vapor intrusion screening and modeling has shown the soil vapor intrusion pathway to be complete.

This article provides an air and vapor sampling and analysis strategy for characterizing vapor intrusion. The strategy outlined here may be used as a guide in project planning when the goal is to characterize the vapor intrusion pathway in buildings surrounded by VOC-contaminated soils or located over VOC- contaminated groundwater plumes.

First and foremost, project planners should assess whether air and vapor sampling is appropriate for the project. The EPA recently released draft guidance for evaluating the vapor intrusion pathway "Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater or Soil," available at www.epa.gov/correctiveaction/eis/vapor.htm.

The draft guidance does not encourage air and vapor sampling until after primary or secondary screening shows the vapor intrusion pathway to be complete.

Primary screening requires an evaluation of the obvious exposure issues. First, is there contaminated groundwater in the building basement or, does the building have a VOC-like odor? Second, are the suspected contaminants volatile and toxic enough to be a concern?

Secondary screening uses information gathered from primary screening and existing soil, soil gas and groundwater contaminant data (if available), and simple screening level soil vapor modeling techniques to determine if the soil vapor exposure pathway is potentially complete. For some chemicals, the screening process defaults to the Safe Drinking Water Act - Maximum Contaminant Levels for groundwater contaminants. When the MCL is the default screening value it should be evaluated by a qualified risk assessor to insure that it is protective of the vapor intrusion pathway.

The following recommendations apply to the development of an air and vapor sampling and analysis strategy:

1. Determine if anything in or around the building may contribute to airborne VOCs within the building of concern. Inventory the VOC emission sources that may interfere with interpretation of indoor air sample analytical results obtained from the building in question. Look at the operations performed in neighboring facilities, building materials, paints, cleaning supplies and chemical storage.

> *"...are the suspected contaminants volatile and toxic enough to be a concern?"*

2. Develop site-specific, indoor air health hazard action levels for the chemical contaminants that are suspected to be migrating into the building from contaminated soils and/or groundwater. Such health hazard action levels must be appropriate for building use and the type of occupants (i.e., – workers vs. residents, adults vs. children, etc).

EPA's vapor intrusion guidance discussed above contains screening levels for residential exposures to contaminated vapors that may be adopted as action levels. It is recommended that a risk assessor recalculate these values when the buildings are not considered residential dwellings or if the land use is industrial/commercial.

In most cases, health hazard action levels may be obtained or modified from the EPA vapor intrusion guidance. Occupational safety and health limits may be used on rare occasions when building use is purely occupational, and the occupants can be trained and provided appropriate protective measures when necessary.

Acceptable risk and risk assessment methods used to develop indoor air health hazard action levels are issues best handled by professional risk assessors versed in EPA risk assessment methods, with assistance from professional industrial hygienists.

3. Sample soil gas beneath the floor slab or from soils in crawl spaces to help confirm that VOCs detected inside buildings are a result of contaminated soil vapor migration through the floor slab or crawl spaces.

a. Floor slabs. Drill or core a hole through the floor slab of sufficient diameter to install a sampling probe. Insert a sampling probe into the hole. Assure that it extends slightly into the bedding material and that it is sealed into the hole with VOC-free material. Purge 3 times the sampling system volume, then attach the sampling canister. Sampling canisters for all air and vapor sampling mentioned in this article must meet EPA Toxic Organic methods 14 or 15 specifications.

b. Crawl spaces. Drive a soil gas sampling probe 18 inches into the soil below the crawl space so as to establish a good seal between the probe and soil. Purge and sample as described above.

4. Sample the air in the building to determine if VOCs are present in concentrations that exceed the project specific health hazard action levels. Place canisters in the basement (if applicable), and the main living or working area so that indoor air samples are taken 2 to 5 feet above the floor.

5. Sample air outside of the building to determine the background level of VOCs contributing to and/or interfering with indoor air sampling results. Again, place the sampler so that the air sample is taken 2 to 5 feet above the ground.

6. Analyze only for the VOCs suspected to be intruding into the building from the groundwater or surrounding soils. Follow the analytical protocols in EPA methods TO-14 or TO-15 for VOC analysis by Gas Chromatography/Mass Spectrometry – Selected Ion Monitoring (GC/MS–SIM). These methods are available at www.epa.gov/ttn/amtic/airtox.html. It may be necessary to take advantage of the better sensitivity of Electron Capture Detectors for chlorinated VOCs or Photoionization Detectors and Flame Ionization Detectors for hydrocarbon VOCs, if health hazard action levels are so low they cannot be reliably measured by MS-SIM.

In summary, the recommendations in this article, and the referenced EPA draft guidance are intended to assist in development of air and vapor sampling and analysis strategies to characterize the type and concentrations of volatile organic chemicals in buildings due to contaminated soil vapor intrusion.

For more information contact the Omaha District Public Affairs Office at (402) 221-3913.

Documenting pollution prevention measures

By DEBORAH CURTIN
Engineer Research and Development Center

A newly released Public Works Technical Bulletin helps installation environmental managers capture details about their pollution prevention activities for consistent reporting and sharing lessons learned.

The PWTB, published by USACE, includes a template that standardizes the data collected at Major Command installations.

The Pollution Prevention Act of 1990 states the national policy as: (1) prevent or reduce pollution at the source whenever feasible; (2) for pollution that cannot be prevented, recycle it in an environmentally safe way when feasible; (3) for pollution that cannot be prevented or recycled, treat it in an environmentally safe manner; and (4) dispose and/or release pollutants to the environment only as a last resort and do so in an environmentally safe way.

U.S. Army photo

Deborah Curtin

Pollution prevention (P2) is the Army's preferred approach to complying with environmental laws and regulations.

However, successful P2 activities at one installation often are not transferred to another site that could benefit. Further, some of the P2 investments made have not been validated as to their cost-effectiveness.

HQ USACE asked the Engineer Research and Development Center to develop the template for documenting activities while TRADOC and FORSCOM requested that ERDC collect P2 documentation from their installations and develop guidance.

PWTB 200-1-20, "Pollution Prevention: Lessons Learned," is the result.

The bulletin includes information from several installations and prescribes an interactive investment template that will be used for all future P2 technology documentation.

To download a copy of the PWTB, go the USACE TECHINFO website at www.hnd.usace.army.mil/techinfo/CPW/pwtb.htm.

For more information contact the ERDC's Public Affairs Office at (601) 634-2504.

Iraq

Continued from Page 1

when performing dangerous ordnance and explosives work, the harsh working conditions in Iraq, and the need for expedited action were critical factors in the selections.

The businesses were issued task orders based on contracts competitively awarded in 2000.

"There are a limited number of ordnance companies who not only can do this work, but who have experience on an international level," he said. "Two of the companies, EODT and USA are small businesses and have done good work for the Corps before. Tetra Tech is a large ordnance company with an excellent reputation. Parsons will do our logistics as will Zapata. All in all, we have a good team assembled."

The captured ammunition is either destroyed on site or in designated areas, or transported and stored in a safe, guarded area, said Earhart.

"The goal for destroying munitions is 100 tons a day; however, some munitions can be destroyed more easily than others," said Earhart.

"There is a difference between the detonation of a 500-pound bomb and a box full of hand grenades. The hand grenades take more time, but the bomb takes more explosives. After destruction, the site must then be inspected to ensure all the weaponry has been destroyed."

The biggest challenge for the Center is ensuring a safe and orderly transition from an environment secured by the military to a civilian-controlled working environment, according to Earhart.

New Web site for Army solid waste, recycling

By STEPHEN COSPER
Engineer Research and Development Center

In all disciplines, it is important to share information and discuss topics related to solid waste and recycling with your colleagues. The sharing of information saves time and money as it takes advantage of similar experiences among peers and is a way to take advantage of "lessons learned."

The Army Solid Waste and Recycling Web site, hosted by the Defense Environmental Network Information eXchange (DENIX), www.denix.osd.mil, provides an information exchange forum for solid waste and recycling professionals at all levels of the Army.

Sections of the site include: documents, links to technical guidance, meeting minutes, policy, training, announcements, and a calendar. The web site was created for the Army at the initiation of the ACSIM by the USACERL under the proponency of HQUSACE.

A descriptive PWTB will soon be included on the USACE TechInfo web page at www.hnd.usace.army.mil/techinfo/CPW/pwtb.htm.

The web address for the ASWR site is www.denix.osd.mil/aswr.

To access this site you must have a DENIX login and password.

DENIX serves as the DoD's central location for the distribution of environmental news, policy, and guidance. It is highly recommended that all Army personnel in environmental positions obtain a DENIX login and take advantage of this excellent resource. Solid waste and recycling points of contact are strongly encouraged to check the web site often.

The ASWR site is open only to users with DoD logins.

A parallel, limited site has been set up for public viewing at www.denix.osd.mil/aswr-public.

A related system is an e-mail list server for discussion of solid waste and recycling topics. Go to the above web site to subscribe to the list.

For more information contact the ERDC's Public Affairs Office at (601) 634-2504.

Study proposes River Street cut closure

By TIMOTHY DUGAN
New England District

The New England District is proposing an erosion control project in Hampton-Seabrook Harbor, N. H., to alleviate the erosion on an intertidal sand flat and adjacent shore properties.

"The proposed project involves the closure of the breach across the eroding portion of the middle-ground sand flat. Closure of the breach would be accomplished by constructing two parallel sheet-pile walls on either side of the breach followed by dredging about 84,000 cubic yards of sandy material from the Hampton and Seabrook anchorage areas with a hydraulic dredge to fill the area between the walls," said Study Manager Duban Montoya.

The fill would restore the elevation of the sand flat to conditions that existed before the breach and prevent further erosion of properties along the north side of River Street.

Portions of the anchorage will be dredged to –7 feet mean lower low water (MLLW), and if needed, portions of the Hampton Harbor anchorage will be dredged to – 5 feet MLLW.

This project is being proposed under the National Shoreline Erosion Control Development and Demonstration Program authorized by Congress under the Water Resources Development Act of 1996 and under provisions of the Clean Water Act of 1977.

The study was conducted in response to a request by the Pease Development Authority – Division of Ports and Harbors.

"The sheet pile walls will be composed of double walled composite material sheet piles on either side of the breach," Montoya said.

The western wall (Blackwater River side) will be about 950 feet in length and the eastern wall (Seabrook anchorage area side) will be about 450 feet in length.

Photo courtesy of Navigation Section/Planning Branch

Aerial view of Seabrook Harbor.

Composite piles will be driven approximately eight feet into the sediment with a barge mounted high frequency vibratory pile driver. A stone toe will be placed in front of the walls to prevent scouring, and to tie the walls into the existing riprap along the River Street slope.

Public comments on this proposed project were accepted by the Corps until July 9. "The work will be performed during a five-month period between Oct. 15 and March 15," Montoya said. "The dredging part of the work will occur in the period between Nov. 15 and March 15."

Hampton-Seabrook Harbor is located in coastal New Hampshire. The erosion of an ecologically productive intertidal sand flat and adjacent shore properties at the mouth of the Blackwater River is causing deposition of sandy material in Hampton-Seabrook Harbor's anchorage areas as well as threatening the integrity of the shoreline properties.

"The purpose of this proposed erosion control project is to stop erosion of the adjacent shoreline at the south end of inner Seabrook Harbor, restore the intertidal sand flat, and reduce deposition of shoal material in the Seabrook Harbor anchorage," Montoya said. "The material proposed to fill the breach area is clean sandy material from adjacent anchorage areas."

For more information contact the New England District Public Affairs Office at (978) 318-8264.